

(Practitioner's Docket No. IN-PAT00293/BC1-0067)

## REMARKS

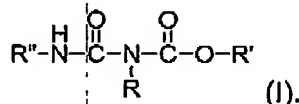
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Upon entry of the present amendment claims 1-19 are pending in the application. Claim 10 has been amended to better describe the claimed invention. Support for this amendment can be found in paragraph [0047]. Reconsideration is requested in view of the following remarks.

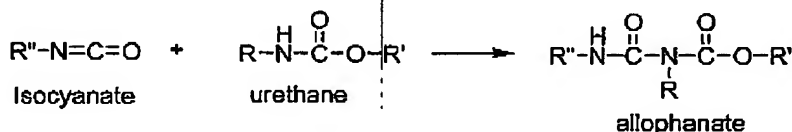
1. Rejection of claims 1-19 under 35 U.S.C. §112, first paragraph,

Claims 1-19 stand rejected under 35 U.S.C. §112, first paragraph as being non-enabled by the specification for methods of preparing the claimed oligomers and polymers containing at least one allophanate group and at least one carbamate group. Applicants respectfully disagree.

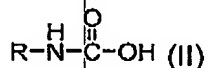
An allophanate group has the formula (I):



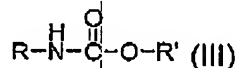
An allophanate can be made by the reaction of an isocyanate and a urethane as shown below:



As is well known polyurethanes may be made by the reaction of a diisocyanates and polyols and the resulting oligomers contain urethane linkages which may react with the isocyanate to make an allophanate. Furthermore, it is well known that a carbamate is an ester of carbamic acid. Carbamic acid has the formula (II):



and hence an ester of carbamic acid (a carbamate) has the formula (III):



which is the same as what is frequently called a "urethane" as described above.

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Applicants respectfully note that the term "polyurethane" as frequently used in the art may describe both polyurethanes as described above and polyureas. Requiring the presence of carbamate groups helps to distinguish the claimed polymer or oligomer.

Given the above explanation, Applicants respectfully assert that preparation of a polymer or oligomer having a carbamate groups and allophanate groups is well within the ability of one of ordinary skill in the art and the pending claims are enabled.

Claims 1-19 stand further rejected under 35 U.S.C. §112, first paragraph, as being non-enabled by the specification for methods of preparing the claimed urea or urea derivative by reacting water with at least one polyisocyanate. Applicants respectfully disagree.

In supporting his assertion that the claims are not enabled the Examiner has put forth two different points. Firstly the Examiner has asserted, in reference to Applicants discussion of the decomposition of carbamic acid, that it would not be obvious to one of ordinary skill in the art to "speculate reaction products of an undisclosed multi-step reaction sequence".

Applicants respectfully assert that this reaction sequence is well known. It's well known that carbamic acid decomposes to carbon dioxide and amine (for example, see attached reference) and it's well known that isocyanate and amines react to form ureas. Hence the reaction sequence is within the ability of one of ordinary skill in the art. Furthermore, the only required reactants are exactly those that are described – water and at least one isocyanate.

Secondly, the Examiner has asserted that the reaction of water with isocyanate groups with water is normally spontaneously fast and would completely deplete the isocyanate groups.

Applicants respectfully assert that the rate of a reaction is typically dependent upon a number of factors including the identity of the polyisocyanate, the temperature of the reaction and the like. Furthermore, even assuming the Examiner's statement is universally true, one of ordinary skill in the art would know to limit the amount of water to prevent the depletion of the isocyanate groups. It is well know in the chemical arts to restrict the quantity of a reactant in order to control a reaction. Applicants earnestly assert that the preparation of a urea or a urea derivative by the reaction of water with at

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least one polyisocyanate is well within the skill of the ordinary practitioner of polyurethane synthesis.

**2. Rejection of claims 1-19 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claims 1-19 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. In particular, the Examiner has asserted that the recitation of a urea or urea derivative prepared by reacting at least one amine and/or water with at least one polyisocyanate is indefinite. The Examiner has asked the question "How can a urea or urea derivative be prepared by reacting water with at least one polyisocyanate?" Applicants believe that this question has been adequately answered in the response to the rejection under 35 U.S.C. §112, first paragraph. Applicants request withdrawal of the rejection.

Claim 10 stands rejected for use of the word "modified". While Applicants disagree with the Examiner's position and respectfully reassert that one of ordinary skill in the art would understand the meaning of the word "modified" Applicants have, nonetheless, amended the claims. In light of the amendment, Applicants believe that Claim 10 is allowable.

Claims 12, 13 and 14 stand rejected for use of the word "complementary" in relation to crosslinking agents and functional reactive groups. The Examiner has asserted that "complementary" is not defined in the specification and hence is indefinite.

Applicants greatly appreciate the Examiner's detailed response but must respectfully continue to disagree.

Applicants have previously argued that:

One skilled in the art would readily recognize that "at least one crosslinking agent containing on average per molecule at least two reactive functional groups which are complementary to allophanate groups" (as recited in claim 12) refers to functional groups that will react with the allophanate to form crosslinking bonds between molecules. Further, one skilled in the art would recognize that "at least one reactive functional group which is complementary to carbamate and allophanate groups" (as recited in claim 13 and claim 14) refers

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to groups that can react with carbamate and allophanate groups to join separate oligomers and/or polymers.

*(Response of 7/18/06, page 13.)*

The PTO has dismissed this argument on the grounds that "...applicants' specification fails to disclose..." the foregoing express statements. (*Office Action of 8/2/06, page 6*).

However, Applicants and the Undersigned are unaware of any requirement that definiteness under 35 USC 112, 2<sup>nd</sup> paragraph requires an in ipsi verbis statement.

Rather, caselaw holds to the contrary. For example, the Federal Circuit has stated that "[d]efiniteness of claim language must be analyzed, not in a vacuum, but in light of (1) the content of the particular application disclosure, (2) the teachings of the prior art, and (3) the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made." See, e.g., *In re Marosi*, 710 F.2d 799, 218 U.S.P.Q. 289 (Fed. Cir. 1983); *Rosemount, Inc. v. Beckman Instruments, Inc.*, 727 F.2d 1540, 221 U.S.P.Q. 1 (Fed. Cir. 1984); *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983).

In this case, Applicants' Specification clearly teaches to one of skill in the art the meaning of the word 'complementary' whether in regards to external crosslinking agents or self crosslinking oligomers. In particular, paragraphs [0049] to [0052] of the Specification state that :

[0049]The mixtures of the invention may comprise at least one crosslinking agent containing on average per molecule at least two reactive functional groups which are complementary to carbamate groups and allophanate groups. **In that case, the mixtures of the invention in question are externally crosslinking.**

[0050] Alternatively to the crosslinking agents or additionally to them, it is possible to use oligomers and polymers (A) containing on average per molecule at least one, in particular at least two, reactive functional groups which are complementary to carbamate groups and allophanate groups. **In that case, mixtures of the invention in question are partially or fully self-crosslinking.**

[0051] Examples of suitable complementary reactive functional groups are N-methylol groups and N-methylol ether groups, preferably the methyl, ethyl, n-propyl and/or n-butyl ethers.

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[0052] Furthermore, the oligomers and polymers (A) may contain further reactive functional groups which are able to undergo crosslinking reactions with complementary reactive functional groups other than those mentioned above. Examples of suitable reactive functional groups are isocyanate-reactive functional groups, such as thiol, hydroxyl and/or primary and/or secondary amino groups, especially hydroxyl groups, or epoxide-reactive groups such as the amino groups or carboxyl groups. It is preferred to use hydroxyl groups.

*(Specification, paragraphs [0049]-[0052], emphasis added.)*

Thus, it is submitted that one of skill in the art would clearly understand that 'complementary' means 'reactive with' the functional groups of Applicants' component (A). In the absence of such shared understanding, the bolded statements above would be unexplainable.

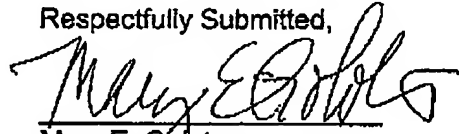
Accordingly, it is submitted that claims 12, 13 and 14 are definite with regards to the 2d paragraph of 35 USC 112. Reconsideration and removal of the rejection is respectfully requested.

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**CONCLUSION**

Applicant(s) respectfully submit that the Application and pending claims are patentable in view of the foregoing amendments and/or remarks. A Notice of Allowance is respectfully requested. As always, the Examiner is encouraged to contact the Undersigned by telephone if direct conversation would be helpful.

Respectfully Submitted,



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